



# Environment and Natural Resources Trust Fund

2025 Request for Proposal

## General Information

**Proposal ID:** 2025-025

**Proposal Title:** Restoration and Outreach for Minnesota's Native Mussels

## Project Manager Information

**Name:** Kathryn Holcomb

**Organization:** MN DNR - Ecological and Water Resources Division

**Office Telephone:** (651) 314-6307

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## Project Basic Information

**Project Summary:** We will improve the conservation of native mussels by rearing and releasing imperiled species, monitoring restored populations, and inspiring public action, thereby improving the health of aquatic ecosystems in Minnesota.

**ENRTF Funds Requested:** \$1,546,000

**Proposed Project Completion:** June 30, 2028

**LCCMR Funding Category:** Water Resources (B)

## Project Location

**What is the best scale for describing where your work will take place?**

Statewide

**What is the best scale to describe the area impacted by your work?**

Statewide

**When will the work impact occur?**

During the Project

## Narrative

### **Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.**

Native mussels are critical to aquatic ecosystems because they filter and clean our rivers and lakes, create habitat for fish and other invertebrates, and serve as indicators of ecosystem health. Unfortunately, more than 70% of the nation's species are in decline. Historically, mussel populations in Minnesota were decimated by overharvest for the pearl and button industries. Pollution also contributed to declines because mussels are sensitive to chemicals and metals. Fortunately, the Clean Water Act and the end of harvesting has slowed the progression of loss for some species, but threats remain. Habitat alterations like dams and channelization cause erosion, siltation, and prevent host fish movement. Furthermore, invasive zebra mussels continue to expand their range and compete with native mussels for habitat and food. These threats and other enigmatic issues put pressure on stressed populations, thus limiting their ability to recover naturally. As such, management benefitting mussels and raising public awareness has become integral over the last few decades. Propagation and reintroduction of mussels to recover depleted populations has benefited species like the endangered Higgins Eye. It is imperative this work continues for other species to prevent and reverse the loss of biodiversity and ensure Minnesota maintains healthy waterways.

### **What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.**

The DNR Center for Aquatic Mollusk Programs (CAMP) is partnering with the Minnesota Zoo to reintroduce imperiled freshwater mussel species into priority waterways, monitor outcomes of management decisions, and increase public perception of their importance. With this partnership, we will build upon previous investments by increasing the number and species of mussels we propagate and reintroduce, thereby improving mussel diversity, abundance, and filtration capacity in rivers. We will utilize our expertise in aquaculture to construct specialized holding tanks for species-specific hosts. We will incorporate the use of equipment that can analyze mussel food quantities in waters used for propagation and holding to improve rearing techniques. We will increase monitoring efforts for released mussels by adding qualitative surveys and measuring new habitat variables, using results to inform selection of future reintroduction sites and determine sustainability of current populations. Finally, we will expand public education and engagement by raising awareness among people of all ages through the Show Us Your Mussel challenge, on Zoo campus, and at other venues and by creating new interpretive materials.

### **What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?**

This project is expected to: 1) Improve degraded rivers and lakes through mussel propagation and reintroduction, thereby increasing mussel populations of Species of Greatest Conservation Need (SGCN) that have limited ability to recover on their own. Subsequently, this will improve water quality and support fish and wildlife recreation and nature-based tourism. 2) Improve the science of mussel reintroductions by leveraging the use of new techniques and tools to conduct propagation and implement monitoring programs. 3) Improve awareness and encourage public action on behalf of Minnesota's aquatic resources by expanding educational programs and spaces that benefit mussel conservation.

## Activities and Milestones

### Activity 1: Propagating and rearing native mussels at CAMP and the Zoo

**Activity Budget:** \$865,930

**Activity Description:**

The DNR and Zoo will collect up to 10 brooding female mussels of each target species annually during early spring to late fall. Broods will be separated by watershed and housed up to several months in chilled recirculating systems. The DNR will acquire up to 200 fish hosts for each mussel species annually. The Zoo will construct and retrofit aquaculture systems and develop husbandry techniques to breed, grow, or maintain host species (fish and/or amphibian). Hosts will be inoculated with mussel larvae at CAMP and kept in specialized juvenile collection tanks, placed into cages within their watershed, or released at selected restoration sites. Juveniles that transform in the lab will be collected from host tanks, counted and placed into rearing systems at CAMP and the Zoo. A portion of juveniles may be transferred to other partners. New food sources and feeding regimes will be explored and evaluated using a particle sizer and counter. Survival and growth will be routinely monitored for 2 - 4 years prior to release.

**Activity Milestones:**

Description	Approximate Completion Date
DNR & Zoo: Collect brood mussels; up to 10 females/species annually.	May 31, 2028
DNR: Collect fish hosts; up to 200 hosts per/mussel species annually.	June 30, 2028
Zoo: Rear up to four species of fish and/or amphibian hosts annually.	June 30, 2028
DNR: Collect juvenile mussels from hosts; up to 200,000/species annually.	June 30, 2028
DNR & Zoo: Rear juvenile mussels; up to 5,000/species annually.	June 30, 2028

### Activity 2: Mussel reintroduction and post-release monitoring

**Activity Budget:** \$421,870

**Activity Description:**

Previous efforts have reintroduced four mussel species among 2 - 3 sites in each of the Cedar, Cannon, and Mississippi watersheds. Two species (2018 & 2019 cohorts) are monitored annually for 3 - 5 consecutive years to determine their response to different habitats and document reproductive status. Results will inform selection of up to three additional reintroduction sites where mussels (2021, 2022, and 2024 cohorts) will be released beginning summer 2024. Therefore, we propose monitoring these new populations annually for three years to acquire data necessary to compare metrics of mussels (survival, growth, reproduction) and habitats (water temperature, ammonia, etc.) among watersheds, sites, species, and cohorts. Furthermore, we will conduct surveys near previously-funded reintroduction sites to document offspring of reintroduced populations. Additional surveys will occur in the three watersheds (and others statewide) to determine the status and management needs for other mussel species. Propagated mussels (2022 and 2024 cohorts) that reach a minimum size of 15 mm during the grant period will be marked with a unique identifier on their shells. A subset of each species will receive a passive integrated transponder (PIT) tag to maintain consistency with our ongoing monitoring plan, and these mussels will be released beginning summer 2025.

**Activity Milestones:**

Description	Approximate Completion Date
Reintroduce up to 5,000 mussels into reintroduction sites; 1-3 sites/watershed annually.	September 30, 2027
Recapture at least 10 tagged mussels at reintroduction sites; 1-3 sites/watershed annually.	October 31, 2027
Document reproductive status of mussels (2016-2019 cohorts) released at previous reintroduction sites annually.	October 31, 2027

Conduct surveys near previous reintroduction sites to find offspring of propagated mussel populations.	October 31, 2027
Conduct surveys at new locations to determine status and management needs for other mussel species.	June 30, 2028

### Activity 3: Expanding public awareness and engagement of native mussels

**Activity Budget:** \$258,200

**Activity Description:**

The Zoo will amplify the “Show Us your Mussels” (SUYM) challenge implemented previously with ENRTF support. This campaign promotes awareness about Minnesota’s water resources and encourages associated public action such as reducing de-icing salt and fertilizer use. We will leverage our educational expertise and engage teachers and their middle and high schools students in the development of informational campaigns addressing water quality and mussel conservation. Students then present their findings at a Mussel Exhibition at the Minnesota Zoo. We will evaluate the impact on knowledge, attitudes, and behaviors and provide teachers multiple levels of support. Zoo Conservation and Education staff will conduct related outreach both on- and off-site. The DNR will inform the public and media about our program and the importance of mussels. We will print hardcopies of the previously updated Field Guide to the Freshwater Mussels of Minnesota. We will present at various events, including the MN State Fair, where people of all ages can learn about the new ENRTF-supported mussel ID app (Clam Counter MNDNR), handle shells, buttons, and live mussels, and take home posters and field guides. Quarterly posts to the DNR Facebook and Instagram pages and our CAMP newsletter, will provide updates on our activities.

**Activity Milestones:**

Description	Approximate Completion Date
Zoo: Create professional development videos to support the SUYM challenge.	June 30, 2026
Zoo: Recruit a small teacher advisory group to assist with implementation of the SUYM challenge.	August 31, 2026
Zoo: Recruitment of new schools to participate in the SUYM challenge (annual).	February 28, 2028
Zoo: Professional development, school presentations and other support provided to teachers.	April 30, 2028
Zoo: Schools visit Zoo to showcase their projects to staff, peers, and public (annual).	April 30, 2028
DNR: Print up to 3,000 copies of the Field Guide (previously updated and digitized).	June 30, 2028
DNR: Annual presentation(s) at various platforms (State Fair, Water Festival, Nature Centers).	June 30, 2028
DNR: Quarterly posts to the DNR Facebook and Instagram pages.	June 30, 2028

## Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Tamara Smith	US Fish and Wildlife Service, Region 3 office	Permitting and planning for reintroduction of federally listed species. Funds acquired for this project can be used as matching funds for our State Wildlife Grants on a 35% state 65% federal basis. \$135,000 will be used as match.	No
Megan Bradley	US Fish and Wildlife Service, Genoa National Fish Hatchery	Technical guidance and expertise. Provision of additional juvenile mussels and coordination of release of more fully-grown sub-adult mussels.	No
Elizabeth Glidewell	US Fish and Wildlife Service, Genoa National Fish Hatchery	Technical guidance and expertise. Provision of additional juvenile mussels and coordination of release of more fully-grown sub-adult mussels.	No
Michelle Bartsch	U.S. Geological Survey	Technical guidance and expertise. Provision of additional juvenile mussels and coordination of release of more fully-grown sub-adult mussels.	No
Dan Kelner	U.S. Army Corps of Engineers	Coordinates and pays for monitoring of reintroduction sites on the Mississippi River	No
Luke Reese	Hormel Nature Center	Director and project advocate for mussels in Austin and at HNC. New freshwater mussel exhibit at HNC.	No
Alli Holdhusen, Marian Shaffer	National Park Service	Assists with monitoring and collection of donor mussels.	No
Tim Ruzek	Mower County Soil & Water Conservation District and Friends of the Hormel Nature Center	Assist with mussel release locations in the Cedar River, and monitor East Side Lake cage location.	No
Jeremy Tiedemann	Illinois Natural History Survey	Technical guidance and expertise.	No
Andrew Scholten	MN DNR	Primary contact for secondary culture in ponds at Waterville Fish Hatchery	No
Ben Minerich	Minnesota Zoo	Coordination of mussel rearing and research activities at the Minnesota Zoo. Support for field surveys and implementation of the Show Us Your Mussels challenge and other education activities at the Zoo.	Yes
Gina Goralski	Minnesota Zoo	Coordination of the Show Us Your Mussels challenge at the Minnesota Zoo.	Yes
Seth Stapleton	Minnesota Zoo	Provision of technical expertise for scientific components of the project. Support for implementation of the Show Us Your Mussels challenge and other education activities at the Zoo.	Yes

## Long-Term Implementation and Funding

**Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this work be funded?**

This proposal is part of a multi-partner effort to restore depleted mussel populations across the upper Midwest, encompassing new watersheds and species. Healthy mussel communities perform significant water filtration services, removing harmful bacteria and contaminants. As such, we anticipate that restoration will play an important role in achieving Minnesota's clean water goals. Our combined efforts will advance the recovery of imperiled mussels, expand

public awareness, and inspire actions to improve water quality, including proper disposal of pet waste and appropriate fertilizer use. We anticipate that conservation activities will extend beyond this proposal period and will seek alternative future funding

### Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Restoring Native Mussels in Streams and Lakes	M.L. 2019, First Special Session, Chp. 4, Art. 2, Sec. 2, Subd. 03b	\$500,000
Expanding Restoration And Promoting Awareness Of Native Mussels	M.L. 2021, First Special Session, Chp. 6, Art. 5, Sec. 2, Subd. 03f	\$489,000
Restoring Mussels In Streams And Lakes - Continuation	M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 08b	\$619,000
Restoring Mussels in Streams and Lakes - Continuation	M.L. 2023, , Chp. 60, Art. 2, Sec. 2, Subd. 08d	\$825,000

### Project Manager and Organization Qualifications

**Project Manager Name:** Kathryn Holcomb

**Job Title:** MNDNR Mussel Program Supervisor

**Provide description of the project manager’s qualifications to manage the proposed project.**

Kathryn has been associated with freshwater mollusk (freshwater mussels and gastropods) conservation efforts since 2010 through the Florida Fish and Wildlife Conservation Commission, Utah Division of Wildlife Resources, and Minnesota Department of Natural resources (MN DNR). She has conducted mussel host-fish research, conducted mollusk surveys (mussels and gastropods), published research in peer-reviewed scientific journals, developed individual species conservation plans for mollusks, developed a statewide mollusk strategy for Utah, assisted with development of a springsnail conservation strategy for the Great Basin (100+ species), coordinated mollusk conservation efforts in Utah, and has been managing the MN DNR's mussel program budget since 2022.

**Organization:** MN DNR - Ecological and Water Resources Division

**Organization Description:**

The MN DNR's Ecological and Water Resources Division's (EWR) goal is to achieve healthy lands and waters in Minnesota. To achieve these goals, the EWR follows a Strategic Plan (2018-2028) that works to address 8 issues: biological diversity, water resources, invasive species, climate change, communication and collaboration, data, workforce health, and sustainable funding.

## Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
<b>Personnel</b>								
DNR -- Supervisor		Administration, coordination, and assistance of Activity 1-3			25%	1.11	X	\$131,500
DNR -- Research Scientist		Coordination and implementation of Activity 1-2			25%	0.69	X	\$87,800
DNR -- NR Specialist Senior		Coordination and implementation of Activity 1-2			25%	1.71	X	\$175,800
DNR -- NR Specialist Intermediate		Coordination and implementation of Activity 1-3			25%	1.02	X	\$263,000
DNR -- NR Specialist		Assist with implementing Activity 1-3			25%	1.32	X	\$209,800
DNR -- Intern		Assist with implementing Activity 1-3			10%	3		\$72,600
Zoo -- Mussel Conservation Specialist, 1 person at 0.35 FTE for 3 years		Coordination and implementation of Activity 1. Support implementation of Activities 2 and 3.			34%	1.05	X	\$125,490
Zoo -- Education Project Coordinator, 1 person at 0.12 FTE for 3 years		Coordination and implementation of Activity 3.			30%	0.36	X	\$51,000
Zoo -- Mussel Educator, 1 person at 0.05 FTE for 3 years		Support implementation of Activity 3			23%	0.15	X	\$12,900
							<b>Sub Total</b>	<b>\$1,129,890</b>

<b>Contracts and Services</b>								
Liu Evelyn Shui Quing	Professional or Technical Service Contract	DNR -- Fees associated with maintaining Clam Counter App. \$2,000 per year.				0		\$6,000
TBD	Professional or Technical Service Contract	Zoo -- Contract to edit and produce professional development videos and resources for teachers participating in Activity 3. Selection through a competitive bid process.				0.06		\$7,500
TBD	Professional or Technical Service Contract	Zoo -- Contracts with teachers to serve as advisory board to Activity 3 and support the development of materials and resources associated with mussel conservation to meet new state education standards. This work is beyond the scope of existing contracts and will occur during summer when teachers are off-contract.				0.04		\$6,000
							<b>Sub Total</b>	<b>\$19,500</b>
<b>Equipment, Tools, and Supplies</b>								
	Tools and Supplies	Mussel and fish food, propagation laboratory supplies, field gear	DNR - propagation lab and field expenses					\$82,500
	Tools and Supplies	Poster stands, poster board, mussel stickers, mussel temporary tattoos, etc.	DNR - Items for outreach					\$1,500
	Tools and Supplies	Zoo -- Mussel rearing and propagation supplies for systems at the Zoo, including filters, drum screens, UV light bulbs, food for mussels and host animals, disinfecting supplies, and other goods. Supplies also include consumables and recurring costs associated with systems maintenance.	Zoo -- Maintenance of existing mussel and host fish systems.					\$61,000
	Tools and Supplies	Zoo -- Supplies for the construction of new systems to rear host animals, including tanks, pumps, chillers, heaters, filters, and other supplies.	Zoo -- New tanks and systems to increase the number of mussels and species of mussels that can be produced.					\$16,000
							<b>Sub Total</b>	<b>\$161,000</b>
<b>Capital Expenditures</b>								
		Hach flow meter	DNR - Quantify mussel habitat (stream flow) at reintroduction sites	X				\$10,000



							<b>Sub Total</b>	<b>\$10,000</b>
<b>Acquisitions and Stewardship</b>								
							<b>Sub Total</b>	-
<b>Travel In Minnesota</b>								
	Miles/ Meals/ Lodging	Fleet costs, meal and mileage reimbursement. No lodging.	DNR - Trips to conduct propagation work and outreach					\$48,000
	Miles/ Meals/ Lodging	Zoo -- Fuel / mileage, meals and lodging. Rates as permitted by State of Minnesota. \$400 / year for 3 years.	Zoo -- Travel to field sites in southern and central Minnesota and to conduct site visits with project partners.					\$1,200
	Conference Registration Miles/ Meals/ Lodging	Zoo -- Fuel / mileage, lodging, meals and registration fees associated with implementation of Activity 3. Reimbursement rates as permitted by the State of Minnesota. \$1,200 / year for 3 years.	Zoo -- Travel to conferences specifically related to Activity 3 and / or mussel conservation to engage educators in the Show Us Your Mussels challenge. Conferences may include MnSTA Conference on Science Education (MNCOSE), Minnesota Independent School Forum STEM Conference, and/or Minnesota Educator Academy. This request also includes travel to schools to provide educational presentations to support the implementation of Activity 3.					\$3,600
							<b>Sub Total</b>	<b>\$52,800</b>
<b>Travel Outside Minnesota</b>								
	Conference Registration Miles/ Meals/ Lodging	2 attendees per year to regional Freshwater Mussel conferences. Registration, miles, meals, lodging.	DNR - Present grant results and network with other mussel propagation professionals					\$7,800
							<b>Sub Total</b>	<b>\$7,800</b>
<b>Printing and Publication</b>								
	Printing	Reprint Minnesota mussel ID book and shipping costs	DNR - Mussel biology and conservation outreach					\$30,000

	Printing	Zoo -- Promotional materials printing in association with Activity 3 (500 half pages x \$0.40 / page: \$200; 500 full pages x \$0.80 / page: \$400)	Zoo -- Printing materials that promote the Show Us Your Mussels challenge for distribution at select professional conferences					\$600
	Printing	Zoo -- Signage for exhibition of student projects	Zoo -- Print reusable signage in support of the exhibition celebrating student work with the Show Us Your Mussels challenge					\$1,500
	Printing	Zoo -- 3D printed mussel shells	Zoo -- 3D print 10 - 15 species of mussel shells for use with education programs, reducing physical wear on artifact shells and better representing endangered species in our programs					\$1,500
							<b>Sub Total</b>	<b>\$33,600</b>
<b>Other Expenses</b>								
		DNR's direct and necessary costs pay for activities that are directly related to and necessary for accomplishing appropriated projects. HR Support (\$21,311), Safety Support (\$2,992), Financial Support (\$10,896), Communication Support (\$1,528), IT Support (\$57,548), and Planning Support (\$1,137).	DNR - Direct and Necessary (overhead costs)					\$95,410
		Zoo -- Bussing (transportation) costs: \$1,000 / school for 12 schools / year x 3 years	Zoo -- Transport students from schools participating in the Show Us Your Mussels challenge to the Zoo to present their work at the exhibition.					\$36,000
							<b>Sub Total</b>	<b>\$131,410</b>
							<b>Grand Total</b>	<b>\$1,546,000</b>

## Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Personnel - DNR -- Supervisor		Administration, coordination, and assistance of Activity 1-3	<b>Classified</b> : This position does not have a permanent dedicated funding base and so the MN DNR cannot backfill the ENRTF portion of their salaries. Classified staff manage this program but they may not be retained to work on mussels without the support of this ENTRF grant. Retaining these positions is essential for implementing this project.
Personnel - DNR -- Research Scientist		Coordination and implementation of Activity 1-2	<b>Classified</b> : This position does not have a permanent dedicated funding base and so the MN DNR cannot backfill the ENRTF portion of their salaries. Classified staff manage this program but they may not be retained to work on mussels without the support of this ENTRF grant. Retaining these positions is essential for implementing this project.
Personnel - DNR -- NR Specialist Senior		Coordination and implementation of Activity 1-2	<b>Classified</b> : This position does not have a permanent dedicated funding base and so the MN DNR cannot backfill the ENRTF portion of their salaries. Classified staff manage this program but they may not be retained to work on mussels without the support of this ENTRF grant. Retaining these positions is essential for implementing this project.
Personnel - DNR -- NR Specialist Intermediate		Coordination and implementation of Activity 1-3	<b>Classified</b> : This position does not have a permanent dedicated funding base and so the MN DNR cannot backfill the ENRTF portion of their salaries. Classified staff manage this program but they may not be retained to work on mussels without the support of this ENTRF grant. Retaining these positions is essential for implementing this project.
Personnel - DNR -- NR Specialist		Assist with implementing Activity 1-3	<b>Classified</b> : This position does not have a permanent dedicated funding base and so the MN DNR cannot backfill the ENRTF portion of their salaries. Classified staff manage this program but they may not be retained to work on mussels without the support of this ENTRF grant. Retaining these positions is essential for implementing this project.
Personnel - Zoo -- Mussel Conservation Specialist, 1 person at 0.35 FTE for 3 years		Coordination and implementation of Activity 1. Support implementation of Activities 2 and 3.	<b>Classified</b> : This staff person has the necessary expertise required to successfully implement Activity 1 and support the implementation of Activities 2 and 3. ENRTF funding will make it possible for this individual to work on the project for the percentage of time indicated in the budget. Without this funding, they would be unable to support the project with their time. Responsibilities for classified staff will be reprioritized and reallocated as necessary to support the project.
Personnel - Zoo -- Education Project Coordinator, 1 person at 0.12 FTE for 3 years		Coordination and implementation of Activity 3.	<b>Classified</b> : This staff person has the necessary expertise required to successfully implement Activity 3. ENRTF funding will make it possible for this individual to work on the project for the percentage of time indicated in the budget. Without this funding, they would be unable to support the project with their time. Responsibilities for classified staff will be reprioritized and reallocated as necessary to support the project.

<p><b>Personnel</b> - Zoo -- Mussel Educator, 1 person at 0.05 FTE for 3 years</p>		<p>Support implementation of Activity 3</p>	<p><b>Classified</b> : This staff person has the necessary expertise required to successfully implement Activity 3. ENRTF funding will make it possible for this individual to work on the project for the percentage of time indicated in the budget. Without this funding, they would be unable to support the project with their time. Responsibilities for classified staff will be reprioritized and reallocated as necessary to support the project.</p>
<p><b>Capital Expenditures</b></p>		<p>Hach flow meter</p>	<p>Stream flow rate is an important component of mussel habitat, and understanding flow dynamics at reintroduction locations will help ensure long-term success of mussel reintroduction efforts.</p> <p><b>Additional Explanation</b> : Monitoring success of mussel reintroductions will require many years, and each year of monitoring will include quantifying flow at reintroduction sites.</p>

## Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
<b>State</b>				
Cash	Minnesota Zoo's General Operating budget	Zoo -- Administrative costs, utilities and other expenses associated with implementation of activities, estimated at 15% of the total request to the Zoo	Secured	\$48,646
			<b>State Sub Total</b>	<b>\$48,646</b>
<b>Non-State</b>				
			<b>Non State Sub Total</b>	-
			<b>Funds Total</b>	<b>\$48,646</b>

**Total Project Cost: \$1,594,646**

**This amount accurately reflects total project cost?**

Yes

## Attachments

### Required Attachments

#### *Visual Component*

File: [a6926849-a66.pdf](#)

#### *Alternate Text for Visual Component*

This visual depicts the three activities proposed for this project. This project will improve the conservation of native mussels by rearing and releasing imperiled species, monitoring restored populations, and inspiring public action, thereby improving the health of aquatic ecosystems in Minnesota....

## Administrative Use

**Does your project include restoration or acquisition of land rights?**

No

**Does your project have potential for royalties, copyrights, patents, sale of products and assets, or revenue generation?**

No

**Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?**

N/A

**Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?**

N/A

**Does your project include original, hypothesis-driven research?**

Yes

**Does the organization have a fiscal agent for this project?**

No

**Does your project include the pre-design, design, construction, or renovation of a building, trail, campground, or other fixed capital asset costing \$10,000 or more or large-scale stream or wetland restoration?**

No

**Do you propose using an appropriation from the Environment and Natural Resources Trust Fund to conduct a project that provides children's services (as defined in Minnesota Statutes section 299C.61 Subd.7 as "the provision of care, treatment, education, training, instruction, or recreation to children")?**

No

**Provide the name(s) and organization(s) of additional individuals assisting in the completion of this proposal:**

Seth Stapleton and Ben Minerich (Minnesota Zoo), Lindsay Ohlman and Isabel Boyce (Minnesota DNR)